

Virtual Reality in the School of Education at **University of Glasgow**

When we wrote in Bulletin 260 [1] on the control measures for using virtual reality in the classroom, we admitted that we did not have much experience of the technology ourselves and wondered if our safety advice was draconian. Since then, we have worked with Gabriella Rodolico of Glasgow University who used our guidance and found it to be entirely appropriate. We thought that Gabriella's findings on the pedagogical aspects of VR would be of interest to many teachers of STEM subjects. She has kindly agreed to share her findings in the following article.

Evidence proves that learning technologies have a huge impact on education at whatever level. A recent study compared the impact that traditional learning, based on books and videos, and Virtual Reality taught lessons had on students in Higher Education. It was demonstrated that VR-supported lessons were able to enhance positive emotions while reducing negative emotions before and after the learning phase [2]

While on the one hand some studies shows that 83% of teachers think that virtual reality might lead to better understanding of learning concepts, greater collaboration (71%) and motivation in the classroom (84%) [3], on the other



Figure 1 - Gabriella Rodolico - Lecturer in Science Education (Biology) at University of Glasgow.

hand there are barriers to the effective implementation of this technology in the classroom, such as lack of confidence and time [4].

Very recently, I started to look into the possibility of studying the impact of Virtual Reality in Education, with the aim to analyse the impact that this type of technology has, not only on the understanding of difficult concepts in science education, but also on the learning experience that teachers and students share every day in the classroom and the enjoyment that comes from this mutual exchange.

In the last few months, I have started a collaboration with Avantis, a leading company in the sector of Virtual Reality applied to Education. The company has supported my initial proposal by agreeing to a short-term loan of their ClassVR headsets and access to their educational portal.

As a first step I visited the Erskine Stewart's Melville School in Edinburgh, where the brilliant

work of Mr Simon Luxford-Moore, eLearning Co-ordinator, has effectively implemented VR technology in the lesson planning of several subjects in the school.

I was able to observe a P6 classroom and I was blown away by the learning and teaching that was going on there. I interviewed the classroom teacher and I realised that, if on the one hand technology is a fantastic teaching tool, on the other hand it is only successful if carefully blended with several other effective pedagogy techniques.

This also highlighted that the only really essential factor that makes learning enjoyable and effective in the classroom is the teachers' passion and commitment to their job with the students at the centre of their planning.

With this in mind, I have planned, in collaboration with my colleagues, some lessons for the PGDE primary student teachers, with a balanced blending of traditional as well as innovative effective pedagogy techniques.



A pit-stop tour of active learning methods in preparation for an on-campus teaching session was organised for our PGDE primary student teachers who, in a meta-level approach, had the chance to test several teaching tools. Students moved from traditional peak flow meters and body organ aprons, to innovative augmented reality t-shirts showing the internal organs, and virtual reality ClassVR headsets with an immersive virtual tour around the body.

The following week PGDE primary student teachers had to plan a lesson on Body systems, in a micro-teaching cooperative style, for the P6 students from Corpus Christi Primary School, who were invited to visit the School of Education. They had the chance not only to choose between all the

resources shown the previous week, but also to create new resources and implement them in their teaching.

The results were amazing [5], and the high quality of resources produced as well as the positive feedback offered by the P6 pupils, showed that, when it comes to teaching passion and confidence, they can be positively supported by technology, but they are also innate qualities to cherish and

further develop with a commitment to lifelong learning. “Docendo Discimus” Seneca- only by teaching we learn!

Further planning is ongoing to evaluate how to increase teachers’ confidence in applying innovative technology such as VR, by organising more seminars within teacher training courses, which will give more chances to student teachers to integrate the VR technology in their effective pedagogy. <<

References

- [1] <https://www.sserc.org.uk/wp-content/uploads/Publications/Bulletins/260/SSERC260p12.pdf>.
- [2] Devon Allcoat* and Adrian von Mühlénen: Learning in virtual reality: Effects on performance, emotion and engagement. *Research in Learning Technology* Vol. 26, 2018.
- [3] <https://www.businesswire.com/news/home/20160627005621/en/Survey-Finds-Teachers-Virtual-Reality-Reality-Classroom>.
- [4] Peter Reed. Staff experience and attitudes towards technology-enhanced learning initiatives in one Faculty of Health and Life Sciences. *Research in Learning Technology* Vol. 22, 2014.

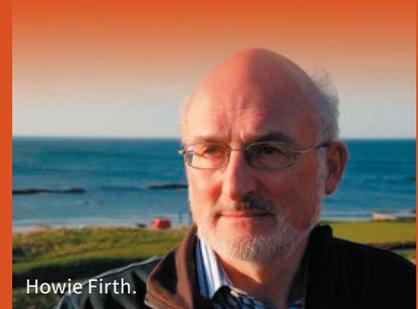
SSERC Annual Conference keynote speakers

For the SSERC Annual Conference in December 2019 we were very fortunate in having two keynote speakers – Graeme McAlister and Howie Firth. Short biographical notes for both speakers follow:

Graeme McAlister is the Chief Executive at the Scottish Childminding Association. Graeme has over 17 years’ senior experience in the voluntary and health sectors in Scotland, specialising in communications, public affairs, stakeholder engagement and membership. During this time, he has influenced legislation, policy, practice and thinking in a number of areas and contributed to the strategic repositioning of organisations for which he has worked.

The title of Graeme’s presentation was ‘*The Importance of Childminders in Supporting Learners*’.

Howie Firth is a scientist, writer and broadcaster who was director of the first Edinburgh Science Festival in 1989, providing the city’s concept of a science festival with a format that has subsequently spread



Howie Firth.

to many other countries. Howie continues to advise and assist with the organisation of science festivals across the UK and internationally.

The title of Howie’s presentation was ‘*Science Festivals: Making science accessible to wider audiences in Scotland*’.

Both speakers generously allowed us to film their presentations and these can be viewed via our SSERC TV channel [1, 2]. <<



Graeme McAllister.

References

- [1] Graeme Mc Allister’s presentation is available at <https://www.youtube.com/watch?v=YOJPldGoFR0>.
- [2] Howie Firth’s presentation is available at <https://www.youtube.com/watch?v=Q3feYoff500>.